

2/2 016 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0135228
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE PRODUCT IS SEPD. BY
SUCCESSIVE TREATMENT WITH H SUB2 O, A MINERAL ACID, AND ISOPROPYL ALC.
FACILITY: INSTITUT ORGANICHESKOGO SINTEZA AN LATVIYSKOY SSR.

UNCLASSIFIED

FAL'KEVICH, E.S.

OK

- 108 -

SPNS 59008
6-73

VII-6. EXTERNAL SHAPE OF THE DISLOCATION AND DISLOCATIONLESS SINGLE CRYSTALS DURING GROWTH FROM A MELT

[Article by V. E. Bevy, M. I. Osenniy, N. N. Nymark, E. S. Fal'kevich, Zmoch'ye Novosibirsk, III Simpozium po Protsessam Rosta i Sintezu Poluprovodnikov, Krasnodar, Russia, 12-17 June 1972, p. 102]

A theoretical analysis is made of the effect of the growth conditions on the shape of dislocation and dislocationless single crystals. It is demonstrated that the dislocationless crystals grown under identical conditions must have broader "evident" faces and greater diameter than crystals with dislocations. These differences must increase with a decrease in the radial temperature gradient. The relations obtained were experimentally confirmed when growing single silicon crystals.

FAL'KEVICH, ES.

SPRS 59208
6-72

III-5. EFFECT OF SUPERCOOLING OF A MELT ON THE STRUCTURE OF SINGLE GERMANIUM CRYSTALS

[Article by E. S. Fal'kevich, Yu. M. Salinov, N. V. Bessonova, Ye. P. Dudnik, Zaporozh'ye: Hovosibirsk, III Simpozium po Protsessam Rozhita i Rostu Poluprovodnikov Khimicheskoy i Fizicheskoy Kibernetiki, 12-17 June, 1972, p. 29]

The morphology of the phase interface in growing single germanium crystals from a melt characterizes the mechanism of the crystallization process [1].

The degree of supercooling of the melt has an effect on the formation of the crystal and its property.

Data have been obtained which indicate the presence of the interaction during supercooling and the crystal lattice during growth from a molten layer. With a radial gradient close to zero in the melt at the crystallization front [2]. By varying the degree of supercooling it is possible to achieve the formation of a dislocationless structure with a radial gradient differing significantly from zero.

BIBLIOGRAPHY

1. I. V. Sali, E. S. Fal'kevich, Proizvodstvo poluprovodnikov iz krmlyaz (Production of Semiconducting Silicon), Metallurgiya, 1970.
2. Yu. M. Salinov, Izv. AN SSSR, ser. fizicheskaya (News of the USSR Academy of Sciences, Physics Series), Vol. 33, No. 17, 2001, 1969.

FAL'KEVICH, E.S.

SPRS 5928
6.73

VI-7. RADIAL DISTRIBUTION OF THE ADMIXTURE IN SILICON CRYSTALS GROWN IN AN ASYMMETRIC THERMAL FIELD

Article by N. I. Orlovskiy, K. M. Nemyark, E. S. Fal'kevich, B. A. Sakharov, Zaporozh'ye; Novosibirsk, III Sibirskiy po Protsessam Rosta, 1 (1972) [Pribludovaniya k Khimicheskoy Teorii, 12-17 June, 1972, p. 79]

An experimental study was made of the radial distribution of phosphorus admixture in silicon single crystals grown in an asymmetric thermal field. It was established that with an increase in the asymmetry of the thermal field, the radial homogeneity of the phosphorus distribution becomes sharply worse.

An analysis was performed of the observed phenomenon, and it was established that it is connected with the "sealing effect" of the crystal. The function was obtained which relates the rate of rotation and growth of the crystal to the parameters of the asymmetry of the thermal field. The selection of the growth parameters of the crystal in accordance with the obtained function permits the exclusion of the embrittlement of the effect of sealing and significant improvement of the radial distribution of the admixture.

USSR

UDC 621.315.592

SALLI, I. V., and ~~FAL~~"KEVICH, E. S.

"Production of Semiconducting Silicon"

Proizvodstvo poluprovodnikovogo kremniya (cf. English above), Moscow, "Metallurgiya", 1970, 150 pp, ill., 40 k. (from RZh-Metallurgiya, No 6, Jun 70, Abstract No 6 G419 K)

Translation: On the basis of extensive experimental material and theoretical propositions worked out by the authors, a description is given of the growth processes of crystals of semiconducting Si. The mechanism of crystal growing from the gaseous and liquid phases is considered in detail. The relationship between the conditions of crystallization, origination, and distribution of structural defects is shown. Consideration is also given to problems related to the development of methods of Si production with a previously specified structure. The monograph is intended for a broad group of specialists dealing with problems of crystal growing, and for those working directly in the production of Si crystals.

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1/2 019 UNCLASSIFIED
TITLE--PRODUCTION OF SEMICONDUCTOR SILICON -U- PROCESSING DATE--16OCT70
AUTHOR--(02)-SALLI, I.V., FALKEVICH, E.S.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, METALLURGIYA, 1970, 149 PP
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--SILICON SEMICONDUCTOR, CRYSTAL GROWING, MONOGRAPH
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1987/0486 STEP NO--UR/0000/70/000/000/0001/0149
CIRC ACCESSION NO--AM0104093
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AM0104093

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 4.
CHAPTER I PROPERTIES AND PRODUCTION METHODS OF SEMICONDUCTOR SILICON
7. CHAPTER II THEORY OF NUCLEATION AND GROWTH OF CRYSTALS 34.
CHAPTER III INVESTIGATION OF GROWTH OF CRYSTALS FROM A GASEOUS PHASE
78. CHAPTER IV INVESTIGATION OF GROWTH OF SINGLE SILICON CRYSTALS
FROM A MELT 106. CHAPTER V PROBLEMS CONNECTED WITH PRODUCTION OF
SINGLE SILICON CRYSTALS WITH AN ASSIGNED STRUCTURE 141. BIBLIOGRAPHY
147. THE BOOK BASED ON EXPERIMENTAL DATA AND THEORETICAL PRINCIPLES
DEVELOPED BY THE AUTHORS DEALS WITH THE GROWTH OF CRYSTALS OF
SEMICONDUCTOR SILICON. THE BOOK WAS WRITTEN FOR SPECIALISTS WORKING ON
PROBLEMS OF CRYSTAL GROWTH AND THOSE CONNECTED WITH PRODUCTION OF
SILICON CRYSTALS.

UNCLASSIFIED

FAL'KO A.I.

Approved for public release. Distribution unlimited.

KEY WORDS:
BROADBAND COMMUNICATION
INTERFERENCE IMMUNITY
COMMUNICATION SYSTEM
RADIO RECEIVER
COMMUNICATION R AND D
COUNTRY CODE: UR
SUBJECT CODE: 17

AUTHOR: A. I. Fal'ko
SOURCE: Trudy Uchebnykh Institutov SVYAZ
USSR, 1967 Leningrad
LANGUAGE: Russian
COUNTRY: USSR
REQUESTOR: ANSEL-WL-NF

Communications
System

FOREIGN TITLE: Pechukhovskoychivost' Shirokopolosnykh Svyaznykh
Pri Vozdukhovoy Sostoyatelnoy Pomekhi

ENGLISH TITLE: INTERFERENCE REJECTION BY BROAD BAND COMMUNICATION
SYSTEMS IN THE PRESENCE OF CONCENTRATED INTERFERENCE

TRANSLATION

In Reply Refer to:
FSTC-23-1311-72
DIA Task No. 170-23-01

Date: 29 December 1972



DEPARTMENT OF THE ARMY
U.S. ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER
110 SEVENTH STREET NE
CHARLOTTESVILLE, VIRGINIA 22901

ARR/FSTC INT-23-1311-72

SC/RA

USSR

UDC 621.391:519.2

FAL'KO, A. I.

"Noiseproofness of Wide Band Communication Systems in Overloaded Wave Bands"

Radioelektronika v nar. kh-ve SSSR. Ch.1 -- V sb.(Radio Electronics in the National Economy of the USSR. Part 1 -- collection of works), Kuybyshev, 1970, pp 103-111 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A57)

Translation: The noiseproofness of a wide-band adaptive coherent receiver with parallel analysis of the noise spectrum is investigated in the case where there is an equalizer at the input and in the case of a simplified wide-band receiver (nonadaptive) without an equalizer. It is demonstrated that the noiseproofness of the simplified receiver can be improved by introducing rough consideration of the spectral structure of the noise by eliminating lumped noise exceeding some threshold. There is 1 illustration and a 3-entry bibliography.

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- 29 -

USSR

UDC 621.396.626.3019.4

F
FAL'KO, A. I.

"Optimal Reception with Non-White Noise"

Moscow, Radiotekhnika, Vol 25, No 8, Aug 70, pp 29-33

Abstract: The communication system described in this article is a broad band system operating in the overload range of the spectrum, with the noise active through the signal bandwidth. Under these conditions, the ideal receiver is one which operates ideally in white noise with an equalizer at the input transforming the nonwhite noise into white. The author considers a receiver variation in which the spectrum of the received signal and noise mixture is divided into bands of equal width by using a series of filters with contiguous rectangular characteristics. The block diagram for such a receiver is given. From the expression for the spectral density of the white noise produced by the equalizer after passage through it of the filter-divided mixture, and the expression for the signal spectrum after it goes through the equalizer, plus the Rayleigh theorem, a final expression is obtained for the noise immunity of a binary signal receiver of this type where the signal does not fade.

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USSR

UDC 621.762.2

MEL'NIK, V. G., FAL'KO, V. T., and DAN'KOVA, L. D., Shostka Branch of All-Union Scientific Research and Planning Institute of Chemical and Photographic Industry

"Method of Making Magnetic Powder"

USSR Authors' Certificate No 270712, Cl. 12 n, 49/02, (C 01 g), filed 12 Apr 69, published 17 Aug 70 (From RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G407P by S. Krivonosova)

Translation: A method is suggested for making magnetic powder by consecutive treatment of iron sulfate with alkali and ammonium nitrate with subsequent rinsing off of the resultant precipitate, filtration, drying, and roasting. In order to increase product quality, the process is carried on in the presence of a water-soluble nickel salt, for example nickel sulfate, chloride, or nitrate. The nickel salt is introduced in the amount of 4-7%.

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- 30 -

USSR

UDC: 681.3.06:51

ZAYTSEV, V. G., IVANOV, P. P., FAIKOV, F. B.

"Principles of Compiling a Sector-Wide Descriptive Dictionary"

Tr. NII upravl. mashin i sistem (Works of the Scientific Research Institute of Control Computers and Systems), 1971, vyp. 5, pp 191-196 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V932)

Translation: The authors consider the problem of making up a sector-wide descriptive dictionary by merging existing narrow-area glossaries. The requirements to be met by the dictionary are enumerated. In particular, it is pointed out that synonymous key words in the dictionary are united by denotation of communality of meanings into classes of conditional equivalence, each of these classes being designated by a symbol -- a descriptor. If the word has no symbols, then it forms an individual class. The dictionary has its own system of reference tags, whose functions and meaning are taken up in detail in this paper. Two forms of merging narrow-area glossaries are proposed, and recommendations are given on using each form. A detailed analysis is given of a method of compiling a sector-wide dictionary based on narrow-area glossaries of base organizations and

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ZAYTSEV, V. G., et al., Tr. NII upravl. mashin i sistem, 1971, vyp. 5, pp 191-196

a card catalog of terminology usage. In conclusion, the general characteristics of the sector-wide descriptive dictionary are given and methods of using it are indicated. T. Sidorova.

2/2

- 61 -

1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--NEW AND LITTLE KNOWN SPECIES OF THE GENUS ENDOTHEMIA S T P H.,
LEPIDOPTERA, TORTRICIDAE, IN THE FAUNA OF THE USSR -U-
AUTHOR--FALKOVICH, M.I.
COUNTRY OF INFO--USSR
SOURCE--VESTNIK ZOOLOGII, 1970, NR 3, PP 68-76
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--INSECTA, ANATOMY, GEOGRAPHIC LOCATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/0362 STEP NO--UR/0575/70/000/003/0068/0076
CIRC ACCESSION NO--AP0126118
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126118

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DEALS WITH THE DESCRIPTIONS OF THREE NEW SPECIES OF THE GENUS ENDOETHENIA S T P H.: E. FURVIDA FLKV. SP. N., DISTRIBUTED IN THE FAR EAST AND IN SOUTH SIBERIA; E. INGRATA FLKV. SP. N. AND E. REMIGERA FLKV. SP. N., WHICH ARE FOUND ONLY IN THE SOUTH OF THE FAR EAST (PRIMORYE TERRITORY). THE FAR EASTERN E. ATRATA CAR. REGARDED BY CARADJA AS A FORM OF E. LAPIDEANA H. S. IS CONSIDERED AS A VALID SPECIES. AFTER EXAMINING THE TYPES THE AUTHOR CONSIDERS SMALLER THAN GRAPHOLITHA LARGER THAN DESERTANA STGR. AS A SYNONYM TO ENDOETHENIA GENTIANAEANA HB., AND E ADUSTANA KROG. AS A SYNONYM TO E. HEBESANA WKR. FACILITY: ZOOLOGICAL INSTITUTE, ACADEMY OF SCIENCES, USSR.

UNCLASSIFIED

1/2 045 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CERTAIN NONSELF-SIMILAR PROBLEMS IN JET FLOW THEORY -U-

AUTHOR--(02)-KOROBKO, V.I., FALKOVICH, S.V.

F

COUNTRY OF INFO--USSR

SOURCE--AKADEMIYA NAUK SSSR, IZVESTIYA, MEKHANIKA AERODINAMIKI I GAZA,
MAR.-APR. 1970, P. 80-91
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--JET FLOW, BOUNDARY LAYER THEORY, NOZZLE FLOW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1391

STEP NO--UR/0421/70/000/000/0080/0091

CIRC ACCESSION NO--AP0125039

UNCLASSIFIED

2/2 045

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125039

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE NONSELF-SIMILAR PROBLEMS ABOUT THE DEVELOPMENT OF A PLANE SUBMERGED JET IN AN UNBOUNDED SPACE AND THE DEVELOPMENT OF A PLANE SUBMERGED JET AT A WALL. AN ASYMPTOTIC EXPANSION FOR THE STREAM FUNCTION IS OBTAINED, AND THE SECOND AND THIRD TERMS OF THE EXPANSION, EXPRESSING SCHLICHTING'S (1956) AND AKATNOV'S (1953) SOLUTIONS AND THE SELF-SIMILARITY INDEX, ARE DETERMINED IN FINAL FORM. IT IS SHOWN THAT LOITSIANSKII'S (1953) SOLUTION TO THE NONSELF-SIMILAR PROBLEM OF A FLUID JET EXPELLED FROM AN ANNULAR NOZZLE INTO A SPACE FILLED WITH THE SAME FLUID AS THE JET CAN BE CONSIDERED AS THE GENERAL SOLUTION TO THE PROBLEM WITHIN THE FRAMEWORK OF BOUNDARY LAYER THEORY.

UNCLASSIFIED

USSR

KOROBKO, V. I., FAL'KOVICH, S. V., Saratov

"Some Nonselfsimilar Problems of the Theory of Jet Streams"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti I Gaza, No 2, March-April 1970, pp 80-91

Abstract: This article contains an investigation of nonselfsimilar problems of the development of submerged plane flow in unbounded space and the development of plane submerged flow along a solid wall. The form of the asymptotic expansion of the current function is established, and the second and third terms of this expansion expressed in terms of selfsimilar solutions of G. Shlikhting, and N. I. Akatnov and the index of selfsimilarity are found in final form.

It is demonstrated that in the case of the nonselfsimilar problem of development of an axially symmetrical radial-slot flow in unbounded space, the correction in the nonselfsimilar term is very small by comparison with the selfsimilar solution of L. G. Loytsyanskiy. Plane and axially symmetrical jet streams are widely used in various fields of engineering. These streams are formed by sources of finite dimensions and are essentially nonselfsimilar.

It is pointed out that the existing selfsimilar solutions of the two-dimensional problems of G. Schlichting for the development of the submerged flow

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USSR

KOROBKO, V. I., FAL'KOVICH, S. V., Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti I Gaza, No 2, March-April 1970, pp 80-91

in infinite space and N. I. Akatanov for the development of a submerged flow along a solid wall are valid only at sufficiently large distances from the source. These solutions do not consider the initial velocity distribution. Mathematical analyses are presented for the basic equations of a plane laminar boundary layer, propagation of a submerged flow in infinite space, propagation of a submerged flow along a solid flat surface, the solutions of nonselfsimilar problems of plane jet streams, the nonselfsimilar problem of development of an axially symmetrical radial-slot flow in space submerged in the same fluid, the solutions of nonselfsimilar problems of axially symmetrical jet streams, and the development of a radial-slot flow in space submerged in the same fluid. It is pointed out that in the case of development of radial-slot flow in a space submerged in the same fluid, the selfsimilar solution of L. G. Loytsyanskiy is in fact the general solution of the problem within the framework of boundary layer theory.

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Acc. Nr.: Am 0044316

Ref. Code: LLR 0000

Fel'kovich, S. Ye.

Evaluation of Signal Parameters (Otsenka parametrov signala) Moscow, Sovetskoye Radio, 1970, 333 pp (SL:1949)

TABLE OF CONTENTS:

Preface		
Chapter 1	Introduction Into Statistical Communication Theory	3
2	Basic Relationships of the Theory of Optimum Radio-Reception Methods	5
3	Evaluation of Continuous Signal Parameters	36
4	Evaluation of Discrete Signal Parameters	105
5	Potential Possibilities of Systems for Direction Finding by Means of Scanning the Radiation Pattern	146
6	Evaluation of Processes	179
		200

1/2

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7	Optimum Space-Time System for Processing of Signals	239
8	Optimum Reception of Signals in the Presence of Additive and Multiplicative Noise	288
Bibliography		322
List of Symbols		326

...The book was written for scientists, radio engineers and senior
radio-engineering students.

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USSR

UDC 621.396.62.089.52

FAL'KOVICH, S. Ye., MUZYKA, E. N.

"Sensitivity of Radio Receivers with Transistorized Amplifiers"

Chuvstvitel'nost' radiopriyemnykh ustroystv s tranzistornymi usilitelyami (cf. English above), "Energiya", 1970, 127 pp, ill. 35 k. (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D1 K)

Translation: Sources of noise in a transistor are considered and its equivalent noise circuit is constructed. Computational expressions are derived for determining the noise coefficient for various methods of transistor connection, and the noise coefficient is studied as a function of frequency, internal feedback and matching conditions. Computational examples are given as well as graphs of the noise coefficient as a function of the various parameters, and also the parameters of some high-frequency transistors as a function of frequency and operating conditions.

1/1

1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--HEAVY PYRIDINE BASES AS CORROSION RETARDING AGENTS -U-

AUTHOR--(02)--FALKOVSKAYA, L.M., BELIKOVA, M.S.

COUNTRY OF INFO--USSR

SOURCE--KIEV, TEKHNLOGIYA I ORGANIZATSIYA PROIZVODSTVA, NO 1, 1970, PP
75-77

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--COKE, LOW CARBON STEEL, STEEL CORROSION, PYRIDINE, CORROSION
INHIBITOR

CONTROL MARKING--NO RESTRICTIONS

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PROXY REEL/FRAME--1999/1341

STEP NO--UR/0418/70/000/001/0075/0077

CIRC ACCESSION NO--AP0123299

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123259

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDY THE PROTECTIVE EFFECT OF HEAVY PYRIDINE BASES (TPD) ON THE CORROSION OF LOW CARBON STEEL IN ONE N SULFURIC ACID. EXPERIMENTAL DATA INDICATED A SUFFICIENTLY EFFECTIVE PROTECTIVE ACTION OF HEAVY PYRIDINE BASES WITH RESPECT TO CORROSION OF STEEL. THE CORROSION RETARDING EFFECT ACHIEVED BY ADDING VARIOUS CONCENTRATIONS OF HEAVY PYRIDINE BASES LIES WITHIN THE 61-100PERCENT LIMITS. HEAVY PYRIDINE BASES ARE INEXPENSIVE PRODUCTS OF THE BY PRODUCTS OF THE COKE INDUSTRY. THEY CAN BE USED FOR RETARDING CORROSION IN ACID MEDIA.

UNCLASSIFIED

FAL'KOVSKIY, G. E.

CURRENT PROBLEMS DEALING WITH HEART TRANSPLANTATION

JPRS 55569
29 MAR 72
UDC: 616.12-089.8-1

[Article by V.I. Burakovskiy, Ya.L. Rukopnik, M.A. Frolova, G.E. Fal'kovskiy, Institute of Cardiovascular Surgery, Imeni A.N. Bakulev, USSR Academy of Medical Sciences, Moscow; Moscow, Vostok Akademi Meditsinskikh Nauk 555, Kharkov, No 2, 1972, pp 77-85]

Heart transplantation, a method of treating patients with advanced cardiac pathology that does not respond to any of the presently known therapeutic and surgical methods, is experiencing a critical period.

Today, much depends on whether modern science will be able to catch up to the flight of surgical fantasy or whether the experience of tissue incompatibility will bury it in oblivion without making even a single dream come true.

The ethical aspects confronting scientists are quite vast, but they do not detract from the present status of the problem. At the present time in most countries of the world appropriate laws have been issued dealing with the legal aspects of this operation. The question of whether or not to perform a heart transplant, which is strictly a theoretical one for sociologists and demographers, becomes a purely practical one when it involves a concrete patient who is dying before the eyes of a team of experienced cardiologists.

The visible consensus toward the operation on the part of the vast majority of surgeons is not due to a question of principles, but rather because theoretical aspects of transplantation have not been worked out sufficiently. After performing several more or less successful operations and becoming convinced of the feasibility of the surgical technique, most leading cardiologists have returned to experimentation and have undertaken the complex investigation of the chief issues in transplantology.

Tables 1, 2, and 3 submit data on heart transplants performed (Bergan, 1970) and of March 1971.

Organ and Tissue Transplantation

USSR

UDC 616.12-089.843-089.168-07:616.12-008.9-097.5

RAPOPORT, Ya. L., ~~FAL'KOVSKIY, G. E.~~, and GALANKINA, I. Ye., Institute of Cardiovascular Surgery imeni A. N. Bakulev, Academy of Medical Sciences USSR

"Immunomorphology and Pathology of Allotransplanted Heart (Without Immuno-depressive Effect)"

Moscow, Arkhiv Patologii, No 4, 1971, pp 43-49

Abstract: Morphological and histochemical changes in the lymphatic system and allotransplanted heart of dogs 1 to 12 days after the operation without the use of immunodepressive agents were studied. Morphological changes appeared in the lymph nodes and spleen before signs of rejection in the transplant. The changes were characteristic of active antigenic irritation - hyperplasia of the follicles and plasma cell and macrophage reactions. Rejection of the transplant was indicated by alterations in the blood vessels and impairment of permeability, infiltration of interstitial spaces with lymphoid and plasma cells (typical of the delayed type of hypersensitivity), disturbance of muscle fiber metabolism characteristic of myocardial hypoxia (disappearance of glycogen, decreased content of succinate dehydrogenase, denaturation of contractile proteins) and ultimate destruction of the fibers. All these processes associated with rejection of allotransplanted heart constitute a syndrome that might be called "transplantation myocarditis."

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Organ and Tissue Transplantation

USSR

UDC: 616.12-089.843-089.168

FAL'KOVSKIY, G. E., KAZAKOV, E. N., YARLYKOVA, Ye. I., ASTRAKHANTSEVA, G. I.,
ALEKSEIEVA, L. A., KOBKOVA, I. D., SOKOLOV, M. V., GALANKINA, I. Ye., BOL'SHUKHINA,
L. A., and GUDKOVA, R. G., Institute of Cardiovascular Surgery imeni A. N. Bakulev,
Academy of Medical Sciences USSR, Moscow

"The fate of an Heterotopic Heart Allotransplant"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 6, Nov/Dec 70, pp 3-12

Abstract: Donor hearts transplanted to the iliac arteries of recipient dogs survived up to 16 days. The causes of cessation of transplant function during the first 48 hours were surgical complications (death of the recipient from the anesthetic, hemorrhages from the sutures, thrombosis). In the absence of such complications, the transplants continued to function 3 to 12 days average, (4.75 days) when immunodepressants were not used, and 3 to 8 days (average, 6.16 days) when they were. Cardiac arrest was preceded by arrhythmias, a decrease in voltage of the ventricular complex, and increase in lymphocytes in the peripheral blood following leukopenia. Immunomorphological changes in the recipient's lymphatic system preceded the morphological signs of rejection in the transplant (pronounced lymphoid-histiocyte infiltration, changes in the arteris, and metabolic disturbances in the myocardium).

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1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--DENSITY AND DAMPING OF SURFACE MAGNETIC STATES -U-
AUTHOR--FALKOVSKIY, L.A. F
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 5, PP 1830-42
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--DAMPING MOMENT, ELECTRON ENERGY LEVEL, MAGNETIC FIELD, SURFACE
PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0016 STEP NO--UR/0056/70/058/005/1830/1842

CIRC ACCESSION NO--AP0127666
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127666

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DAMPING AND SHIFT OF THE LEVELS OF ELECTRONS MOVING IN A MAGNETIC FIELD AND REFLECTED FROM A ROUGH METALLIC SURFACE ARE RELATED TO THE MICROSCOPIC CHARACTERISTICS OF THE SURFACE. THE RESULTS ARE VALID FOR AN ELECTRON FOR WHICH THE WAVELENGTH PROJECTION NORMAL TO THE SURFACE IS GREAT COMPARED WITH A MEAN ROUGHNESS. AN EXPRESSION FOR THE STATE DENSITY IS OBTAINED.
FACILITY: INSTITUT TEORETICHESKOY FIZIKI IM. L. D. LANDAU, AN SSSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--THE CHARACTERISTICS OF THE FUNCTIONAL STATE OF THE BRAIN INGLIOMAS
OF THE MIDDLE STRUCTURES OF THE HEMISPHERES -U-
AUTHOR--(02)--FILIPPUCHEVA, N.A., FALLER, T.O.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,
VOL 70, NR 5, PP 646-654
DATE PUBLISHED-----70
-SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BRAIN, CELL PHYSIOLOGY, BLOOD CIRCULATION, INTRACRAINIAL
PRESSURE, HYPOXIA, AUTOPSY, CENTRAL NERVOUS SYSTEM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/0253 STEP NO--UR/0246/70/070/005/0646/0654
CIRC ACCESSION NO--AP0117505
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117505

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDIED PHYSIOLOGICALLY THE BRAIN ACTIVITY IN AN AFFECTION OF TWO LEVELS OF THE MIDDLE STRUCTURES: THE AREA OF THE 3 VENTRICLE (3 CASES) AND THE CALLOUS PERIVENTRICULAR SEPTAL AREA (6 CASES). IN ALL CASES IN AN INSIGNIFICANT EXPRESSION OF THE INTRACRANIAL HYPERTENSION THERE WERE STABLE CHANGES OF CONSCIOUSNESS AND THE EXISTENCE OF AMNESTICAL SYNDROMES. THE DIAGNOSIS WAS CONFIRMED IN POSTMORTEM EXAMINATIONS. FOR PURPOSES OF DETERMINING THE BRAIN ACTIVITY THE FOLLOWING INDICES WERE SELECTED: (1) THE STATE OF THE STEM CORTICAL CORRELATIONS; (2) THE STATE OF THE CENTRAL REGULATION OF THE BRAIN AND PERIPHERAL CIRCULATION; (3) THE STATE OF THE CENTRAL REGULATION OF VOLUNTARY MOVEMENTS. THE AUTHORS COME TO THE CONCLUSION THAT THE BRAIN OF THE BRAIN OF THE ABOVE MENTIONED PATIENTS WORKED IN CONDITIONS OF EXPRESSED DISORDERED NONSPECIFIC AFFERENT EXCITATION FROM THE STEM AREA, AS A RESULT OF ITS PARTIAL BLOCKING; IN CRUDE PATHOLOGICAL STEM INFLUENCES; IN CONDITIONS OF STABLE DISORDERS OF CEREBRAL CIRCULATION WHICH PROBABLY BRINGS ON A STATE OF CHRONIC HYPOXIA. A COMBINATION OF THESE FACTORS LEADS TO A DECREASE ON THE LEVEL OF EXCITATIVE AND A DEVELOPMENT OF INHIBITIVE STATES OF DIFFERENT DEPTH OF THE HEMISPHERES. THIS MAY BE THE BASIS OF STABLE CHANGES OF CONSCIOUSNESS AND THE APPEARANCE OF THE AMNESTICAL SYNDROME. FACILITY: N-I INSTITUT NEYROKHIRURGII IM. N. N. BURDENKO AMN SSSR, MOSCOW.

UNCLASSIFIED

USSR

UDC 537.533.3

FALOV, A. F. and ZABOYEV, A. I.

"Ion Beam Focusing in Two-Dimensional Magnetic Fields"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 40, No 3, Mar 70, pp 533-550

Abstract: An analytical theory of the horizontal focusing up to the third order inclusively over horizontal dispersion angles of a beam in a homogeneous two-dimensional magnetic field is developed. It is noted that shortcomings in existing charged particle separators stem chiefly from the fact that a theory of these devices has not been developed, resulting in the magnetic fields and their designs being selected empirically. These mass separators do not have sufficiently high dispersion for separating any heavy isotopes, since a general theory for the class of fields used was absent: initially the magnetic field in the middle plane ($z=0$) drops constantly and then monotonically under a change in one coordinate. The present article solves the problem of finding analytical expressions for magnetic fields of this class which provide focusing up to the third order. The class of focusing magnetic fields (independent of x) which are generally nonmonotonic functions of y in the plane $z = 0$ is obtained. Calculations which will be published in the near future have shown that representations characterized by

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USSR

FALOV, A. F. and ZABOYEV, A. I., Zhurnal tekhnicheskoy fiziki, Vol. 40, No. 3, Mar 70, pp 538-550

small horizontal and vertical aberrations are obtained in certain fields of this type in the focal plane. Computational formulas are obtained which can be used to design high-yield mass separators which are characterized by a high dispersion; the formulas can also be used to design alpha and beta spectrometers with high resolution and transmission.

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USSR

UDC 621.376

BORISOV, A. Yu., GORELIK, A. I., and ~~FAL'TSMAN, A. V.~~, Inter-faculty Laboratory of Bioorganic Chemistry of the Moscow State University

"The Use of the OLMSH-100M Electrooptical Light Modulator With Nonlaser Light Sources"

Moscow, Pribery i Tekhnika Eksperimenta, No 1, Jan-Feb 72, pp 174—176

Abstract: Results of an experimental investigation of the OLMSH-100M electrooptical modulator by its use for light modulation from a nonlaser light source are presented. The working of the modulator was studied in operation by doubled modulation frequency and wave lengths of $\lambda=365, 405, 436, \text{ and } 546 \text{ nm}$ and by white light. The modulated light flux was recorded on the FEU-68 photomultiplier with an outlet cathode follower. The optimum parameters of single- and two-lens optical schemata were determined and a comparison with a light modulator on an ultrasonic glass-cell was carried out. The losses in the modulator

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USSR

BORISOV, A. YU., et al., Priory i Tekhnika Eksperimenta, No 1, Jan-Feb 72, pp 174-176

and of the maximum coefficient of modulation t were studied as function of the divergence angle 2α . The dependence of the relative function $\gamma = N/N_{\max}$, where $N = \beta \cdot t \cdot VS$, and S = light flux and β = proportionality factor, on 2α and the focal length of the second lens in the two-lens system are discussed by reference to diagrams showing the advantage of the two-lens system. Two illustrations, three biblio. refs.

2/2

- 178 -

USSR

UDC 621.396.677.833

FALUNIN, A. A. and GORELIKOV, A. I.

"Numerical Method for Calculating Mirror Antennas With Small Electric Dimensions"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute), 1972, vyp.119, pp 65-72 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B45)

Translation: An integral equation method is proposed which makes it possible to obtain radiation characteristics with an error of ≤ 5 percent for small, plane, parabolic or hyperbolic shaped mirrors. A hyperbolic mirror is studied as an example. The mirror is excited by a half-wave vibrator with a counter-reflector. Radiation patterns of the exciter are obtained for various mirror radii. It is noted that machine time for similar calculation on the BESM-4 computer takes only between 10 and 20 minutes. Original article: four illustrations and five bibliographic entries. N.S.

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- 10 -

USSR

UDC 577.391, 612.822.1

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FAMICHENKA, K. V., GAMEZA, M. V., SURYKAN, P. M.

"Guanosine Nucleotides in the Brain During Neutron Irradiation"

Minsk, Vestsi Akademiyi Nauk BSSR, Seryya biyalagicheskikh Nauk, No 1, 1970, pp 85-90

Abstract: Since the nucleotides, guanosine monophosphate (GMP), guanosine diphosphate (GDP), and guanosine triphosphate (GTP), participate in the biosynthesis of polypeptide chains, internal respiration, etc., their activity in four groups of guinea pigs was studied. Experimental animals were irradiated with .3.5 r of penetrating neutrons and sacrificed 4, 8 and 12 hours after irradiation. Pure nucleotides were obtained and determined quantitatively. Experimental results show that the GMP content increased 8 hours after irradiation, and was almost equal to controls after 4 and 12 hrs. The amount of GDP, almost unchanged at 4 and 12 hrs, had considerably decreased (50%) at 8 hrs. GTP showed a very slight change at 4 hrs., decreased almost to zero at 8 hrs, and increased at 12 hrs. Total nucleotides were reduced after 8 hrs only. It was concluded that the effect on nucleotide content in the brain of guinea pigs is most pronounced 8 hours after neutronic irradiation.

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- 32 -

USSR

UDC 666.914

DANILOV, V. I., Engineer (Khoroshevskiy Reinforced Concrete Parts Plant DSK-1),
MERKIN, A. P., Candidate of Technical Sciences (Moscow Order of the Red Banner
of Labor Engineering and Construction Institute imeni V. V. Kuybyshev), and
FAMINSKIY, O. I., Engineer (Glavmosstroy)

"Technology of High-Strength Gypsum Plaster Parts"

Moscow, Stroitel'nyye Materialy, No 1, Jan 74, pp 14-15

Abstract: New technology has been proposed for the single-step production of gypsum and gypsum plaster parts from dihydrous gypsum. The method involves intensive dehydration during heating of the dihydrous gypsum powder whereupon the chemically bonded water remains in the mass in the form of moisture and then, as a result of cooling, enters into the reaction of the polyhydrate hydration. With this method it is possible to produce plaster with filler with a compressive strength up to 600 kgf/cm^2 at a bulk density of 2200 kg/m^3 . This new method eliminate a number of intermediate processes and yields a better product than obtained from currently used production processes. A figure shows the production schematic for manufacture of sheet rock. Three figures.

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USSR

MUNAYEV, Yu. A., IKSANOV, B. A., MARMYNOV, S. E., ~~FAMKULLIN, O. Kh.~~

"Wetting of Zirconium Nitride with Nickel-Cobalt Alloys"

Moscow, Izvestiya Vysshikh Uchevnykh Zavedeniy, Chernaya Metallurgiya,
No 9, 1972, pp 13-15.

Abstract: Results are presented from an experimental study of the equilibrium contact wetting angles as a function of composition, dynamics of change of contact angles during wetting and spreading rate of liquid alloys over a solid coating. The specimens of zirconium nitride used in the study were produced by precipitation from the gas phase onto a substrate of MPG-6 graphite. The thickness of the coatings was 0.7-1.0 mm. The total content of impurities in the nitride coating was not over 0.01%. The test data showed that the wetting of zirconium nitride by a nickel-cobalt alloy occurs by the mechanism of formation of adsorption layers by surface diffusion. Enrichment of the alloys with nickel apparently causes formation of thick, thermodynamically stable adsorption layers, while enrichment with cobalt causes formation of unstable adsorption layers, so that the liquid metal collects into drops.

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- 28 -

FANCHENKO, S. D.

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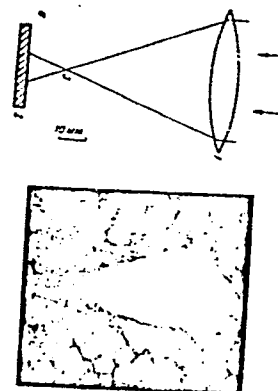


Fig. 1. "flaming"
optical discharge.

The authors suggest adapting the effect to a c-w discharge, using a CO₂ laser for excitation. The effect is claimed as the first of its kind obtained at atmospheric pressure.

Fanchenko, S. D., and G. V. Sholin. Possible mechanisms of turbulent heating of a plasma by ultrashort laser pulses. DAN SSSR, v. 204, no. 5, 1972, 1090-1093.

The authors consider the initial ionization phenomena arising from interaction of a picosecond laser pulse with a very dense plasma. A feature of this case is that the optical field strength E is comparable to intra-atomic field E_a ; this results in an ionization time τ_{ion} on the order of or less than electron-atom collision time, and possibly less than the laser wave period. The model used assumes a picosecond pulse with optical

FANCHEUKO, S. D.

POSSIBLE MECHANISMS OF TURBULENT HEATING OF A
PLASMA BY ULTRASHORT LASER PULSES

UDC 531.9

JPRS 55027
15 May 1973

Article by S. D. Fanchenko, G. V. Sholin; Moscow, Doklady Akademiya Nauk SSSR,
Russian, Vol 204, No 5, 1977, submitted 6 October 1971, pp 1290-1291

In experiments to obtain a high temperature dense plasma using picosecond laser pulses [1], effective heating was observed not only of the electrons but also the ions. Ion heating was observed with an energy appreciably exceeding the electron temperature of the plasma T_e was also detected. The time structure of the laser radiation in these experiments was very complex and, unfortunately, it is not known in all its details up to now. If under the conditions of this experimental indeterminacy the largest possible heating time t_h is given, then the heating of the basic part of the electrons obviously can be explained without considering the collective interactions on the basis of dissipation of the light wave energy as a result of paired Coulomb collisions. As for the ion component of the x-radiation, significant difficulties are encountered in its interpretation with this approach [2].

If, on the contrary, we admit that t_h has a minimum value comparable to the observed width of the optical spectrum of the laser, then obviously difficulties will also arise in explaining the experimentally observed ion heating. The purpose of this paper is to show that when interpreting the results of laser experiments with a superdense plasma it may turn out to be highly significant to call on the mechanisms of turbulent heating previously detected and investigated in the experiments of [3] with a plasma of appreciably lower density.

The characteristic feature of the experiments in heating a plasma by picosecond laser pulses is comparability of the peak field intensity of the light wave E with the intratomic field E_a . As a result, a highly characteristic physical situation can arise where the ionization time of the material by the wave field t_{ion} is comparable to or even less than the time of the paired electron-atomic collisions t_{ea} , the time of the paired electron-ion collisions t_{ei} and the period of the light wave itself $T = 2\pi/\omega$.

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USSR

FANCHENKO, S. D., SHOLIN, G. V.

UDC: 533.9

"Possible Mechanisms of Turbulent Heating of a Plasma by Ultrashort Pulses of Laser Emission"

Moscow, Doklady Akademii Nauk SSSR, Vol 204, No 5, Jun 72, pp 1090-1093

Abstract: It is shown that mechanisms of turbulent heating observed in experiments with low-density plasmas can also be applied to interpretation of the results of experiments with a superdense plasma. When a plasma is heated by picosecond laser pulses, the peak intensity of the field of the light wave E is comparable with the intratomic field E_a . As a consequence, a unique physical situation may arise where the time of ionization of matter by the field of the wave τ_{ion} may be comparable with or even less than the time of electron-atom pair collisions τ_{ea} , the time of electron-ion pair collisions τ_{ei} , or the period of the light wave itself $T = 2\pi\Omega^{-1}$. Let a powerful ultrashort light pulse with frequency Ω be incident on a neutral condensed substance. In a time t much shorter than the rise time of the electric field of the light flux, the light penetrates into the matter almost without producing ionization. As the intensity of the electric field E of the luminous flux increases, the mechanism of sub-barrier ionization

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PANCHENKO, S. D., SHOLIN, G. V., Doklady Akademii Nauk SSSR, Vol 204, No 5, Jun 72, pp 1090-1093

becomes effective, but the degree of ionization at first is low, and the electron plasma frequency ω_{pe} is less than Ω . Finally, as E approaches E_a , all electrons of the substance pass from finite to infinite motion in a time of the order of 10^{-16} s. The authors consider collisionless mechanisms of plasma heating on the first stage of this transition process when $\omega_{pe} < \Omega$, and on the second stage when $\omega_{pe} > \Omega$. The mechanisms investigated include collisionless "ionization" heating of electrons, the formation of collisionless shock waves and annihilation of opposing fields under conditions where the field of the light wave approaches E_a and τ_{ion} less than or of the order of Ω^{-1} , beam-plasma interactions, and turbulent mechanisms of dissociation at high intensities of the light wave. In conclusion, the authors thank Academician Ye. K. Zavoyskiy for assistance with the work and constructive criticism, as well as P. G. Kryukov and S. D. Zakharov for very helpful discussions.

2/2

- 132 -

USSR

UDC 620.193.41

TUSOV, G. P., COCHALIYEVA, YE. P. and FANDEYEVA, M. F., Scientific Research
Physicochemical Institute imeni L. Ya. Karpov

"Cathodic Behavior of Titanium in Acid Solutions"

Moscow, Zashchita Metallov, Vol 10, No 1, Jan-Feb 74, pp 41-44

Abstract: The authors studied the cathodic passivation of VT-1 titanium in $3n\text{ H}_2\text{SO}_4$. In the anodic area, the passivity of titanium is related to the formation of passivating oxide films, while in the cathodic area the form of oxygen passivation is different. Apparently, the reaction of dissolution of titanium in the cathodic area is passivated by surface oxygen compounds, the degree of oxidation of the surface changing in equilibrium upon transition from one potential to another. The experimental material presented speaks in favor of the explanation of the cathodic passivity of titanium by the oxide film and allows the degree of passivity to be preliminarily related to the percentage of filling of the surface with electrochemically active oxygen compounds.

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UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--EXPERIMENTAL ANALYTICAL OPTIMIZATION OF PARAMETERS OF THE SERVO
ELECTRIC DRIVE ACCORDING TO STATISTICAL CRITERIA -U-

AUTHOR--(02)--RASSHCHEPLYAYEV, YU.S., FANDIYENKO, V.N.

COUNTRY OF INFO--USSR

SOURCE--NOVOCHERKASSK, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY,
ELEKTROMEKHANIKA, NO 3, 1970, PP 321-328

DATE PUBLISHED--70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--SERVOSYSTEM, MONLINEAR SYSTEM, ANALYTIC FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1999/1651

STEP NO--UR/0144/70/000/003/0321/0328

CIRC ACCESSION NO--AT0123489

UNCLASSIFIED

2/2 007

CIRC ACCESSION NO--AT0123489

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE OPTIMIZATION OF PARAMETERS OF THE SYSTEMS WITH A PRESET STRUCTURE IS OF GREAT IMPORTANCE. HOWEVER, WHEN INVESTIGATING STATISTICALLY THE SERVO SYSTEM, ESPECIALLY THE NONLINEAR ONES, IT IS PRACTICALLY IMPOSSIBLE TO ESTABLISH THE ANALYTICAL DEPENDENCE BETWEEN THE CRITERION OF QUALITY AND THE VALUES OF PARAMETERS, WHICH RULES OUT ANALYTICAL OPTIMIZATION. THE ARTICLE PRESENTS AN EXPERIMENTAL ANALYTICAL METHOD OF THE OPTIMIZATION OF PARAMETERS OF A DYNAMIC SYSTEM ACCORDING TO STATISTICAL CRITERIA, BASED ON FACTOR EXPERIMENT. AN EXAMPLE IS GIVEN OF THE DETERMINATION OF OPTIMAL PARAMETERS OF A NONLINEAR SERVO ELECTRIC DRIVE FOR THE CASE OF RANDOM STATIONARY CONTROLLING AND PERTURBING ACTIONS ACCORDING TO A CRITERION OF THE MAXIMUM PROBABILITY OF THE NONOCCURRENCE OF THE TRACKING ERROR BEYOND PERMISSIBLE LIMITS. EVALUATION OF ERRORS IS MADE IN DETERMINING PARAMETERS, AND CONFIDENCE LIMITS ARE ESTABLISHED OF THE PROBABILITY OF A NONOCCURRENCE OF THE TRACKING ERROR BEYOND PERMISSIBLE LIMITS.

UNCLASSIFIED

USSR

UDC 535.211

BETANELI, A. I., DANILENKO, I. P., LOLADZE, T. N., SEMILETOVA, YE. F.,
ZHIRYAKOV, B. M., and FANNIBO, A. K., Tbilisi, Moscow

"Study of the Possibility of Additional Alloying of R18 Steel Using a Laser"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 6, Nov-Dec 72, pp 22-26

Abstract: A description is given of experimental results on the introduction of a number of alloying elements (carbon, VK3, VK6, T15K6 mixtures -- standard raw materials for producing solid solutions) into local sections of the surface of R18 high-speed steel with the aid of the quasi-static radiation of a ruby laser. The changes in microstructure and mechanical properties were investigated. Graphs showing the changes in microhardness with depth in the alloyed section according to depth are presented. From X-ray diffraction analyses it was established that the change in lattice parameters in the matrix material occurs as a result of the effect of the alloying elements and the dissolution of carbides in them. The selection of a quasi-continuous mode for local surface alloying proved to be most advantageous because this mode makes it possible to easily control mode parameters and thereby prevent metal failure which would result in the formation of a crater from the laser beam. Three figures, 2 tables, 6 bibliographic references.

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USSR

UDC 612.189+612.16]:612.833

~~FANTALOVA~~ V. L., Institute of Neurosurgery imeni Academician N. N. Burdenko,
Academy of Medical Sciences USSR, Moscow

"Analysis of Variations in Blood Filling of an Organ and Pulse Fluctuations of
Its Volume in the Instance of a Study of the Orientation Reflex"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 70, No 8, Aug 70,
pp 3-7

Abstract: The vascular component of the orientation reaction induced by sound
was studied by determining the plethysmogram and rheogram of adjacent fingers.
Variations in the shape and amplitude of the rheogram pulse fluctuations did not
always correspond to the increase in arterial tonus which would be expected in
connection with the reduction of the degree of blood filling in the finger
associated with the orientation reflex and recorded on the plethysmogram.
Evidently rheographic waves as such are not a reliable index of the degree of
blood filling. Their functional significance requires further interpretation.

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Acc. Nr: **AP0037013**

Ref. Code: UR 0239

PRIMARY SOURCE: Fiziologicheskiy Zhurnal SSSR, 1970, Vol 56,
Nr 2, pp **238-245**

COMPLEX INVESTIGATION INTO MINUTE VOLUNTARY
HYPERVENTILATION EFFECT

Fantalova, V. L.; Turchaninova, O. Ye.

From the N. N. Burdenko Institute of Neurosurgery, USSR
Ac. Med. Sci. Moscow

The influence of voluntary minute hyperventilation (H. V.) on breathing rhythmicity, finger plethysmogram and EEG (all simultaneously registered) has been investigated in 25 healthy adult subjects.

In eleven cases in parallel tests the pH change has been measured, which proved to be 0.07—0.18.

It was established that as a rule the effect of minute H. V. persists several minutes after its stopping.

Nearly all subjects displayed repeated expiratory pauses of variable duration, although immediately after H. V. not apnea, but a brief hyperpnea with an increase in the

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amplitude of respiration was more frequent. In rare cases hyperpnea was constant, and only in one of them the rhythmicity of breathing remained quite undisturbed in its regularity.

In EEG, after initial depression of alpha-activity as an answer to the command and beginning of the movement, its visible intensification appeared as well as more expressed spreading over the hemisphere — cortex — in answer to the developing hypocapnia.

The phenomenon of hypersynchronisation of alpha-rhythm maintained some time after H. V. In the next stage in many subjects a correlation was found between expiratory pauses and periods of depression of alpha-activity in EEG.

This fact compared with other original and literary findings is discussed assuming the possible role of brainstem reticular formation in creation of the CNS reaction to H. V.

It is accentuated that drowsing causes more expressed apnea and repeated expiratory pauses in the posthyperventilation period.

Increase in peripheric blood-filling observed during H. V. confirms literary findings which point to vasodilatation as an answer to hypocapnia.

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The development of vasomotor reaction in posthyperventilation period is variable. In stage-by-stage comparison of blood-filling fluctuations with changes in breathing rhythm and EEG no clear correlations were found.

In control experiments on the same group of persons the reaction of breathing, EEG and plethysmogram to rhythmic voluntary movements of the arms and fingers has been studied («muscular loadings»); these did not cause functional changes which were typical for H. V.

Similar moment was only the first-orienting-like reaction recorded in plethysmographic and EEG.

A detailed analysis of complex functional changes in H. V. reaction in persons with roughly different types of respiratory answer is the object of the following paper.

Dr.

19721948

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UDC 659.14.018.85

USSR

TIMOFEEV, M. M., Candidate of Technical Sciences, FANTAYEVA, M. I., Candidate of Technical Sciences, YARREMINA, V. P., Candidate of Technical Sciences, and SOROKINA, T. M., Engineer, Central Scientific Research Institute of Machinery Manufacture and Metalworking

"The Kh16N9M2 Steel for Steam Pipes With Ultra-High Parameters"

Moscow, Teploenergetika, No 10, Oct 73, pp 9-11

Abstract: The strength properties of steam pipes, 194x28 mm, 133x20 mm, and 76x10 mm in diam., of Kh16N9M2 brand austenitic Cr-Ni-Mo steel, used for a block of the Chelyabinsk Heat and Electric Power Plant, were investigated. The fatigue strength of the base metal of the investigated pipes, at 585, 600, and 650°C, was in accordance with the recommended strength for Kh16N9M2 steel: 14 kg/mm², 12 kg/mm², and 7 kg/mm², respectively. The metal of the pipes is characterized by high plasticity under prolonged tear conditions; the relative elongation of specimens, which desintegrated after 4-5 thousand hrs., was 14-40 %. The

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USSR

TIMCFEYEV, M. M., et al., Teploenergetika, No 10, Oct 73, pp 9-11

strength properties were found sufficiently stable during up to 10 thousand hrs. aging at 600 and 650°C. An established order is recommended for the local electro-austenization of Kh16M912 steel steam pipes in the zone of welded joints. The changes of mechanical properties of the pipe metal during aging and of welded joints after thermal treatment are shown. Seven figures, three tables, five bibliographic references.

2/2

- 79 -

1/3 027 UNCLASSIFIED PROCESSING DATE--040EC70
TITLE--THE HEAT RESISTANT PROPERTIES OF THE METAL OF STEAM SUPERHEATING
PIPES OF STEEL KH18N12T AFTER VARIOUS KINDS OF HEAT TREATMENT -U-
AUTHOR-(02)-FANTAYEVA, M.I., TYKOCHINSKAYA, T.V.

COUNTRY OF INFO--USSR

SOURCE--TEPLOENERGETIKA, NR 5, 1970, PP 13-16

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--HEAT RESISTANT STEEL, PHYSICAL CHEMISTRY PROPERTY, AUSTENITIC
STEEL, CHROMIUM NICKEL STEEL, TITANIUM STEEL, NIOBIUM STEEL, STEEL HEAT
TREATMENT, METAL PIPE/(U)18CR12NI STEEL, (U)KH18N12T STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605010/C01 STEP NO--UR/0096/70/000/005/0013/0016

CIRC ACCESSION NO--AP0140117

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140117

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS KNOWN THAT THE HEAT RESISTANT PROPERTIES OF AUSTENITIC CHROME NICKEL STEELS OF THE TYPE OF 19CR-12NI, STABILIZED BY TITANIUM OR NIOBIUM, ARE DETERMINED PRINCIPALLY BY THE HEAT TREATMENT REGIME. A RISE IN THE HEAT TREATMENT TEMPERATURE IS ACCOMPANIED, AS A RULE, BY AN INCREASE OF THE TIME PRIOR TO DESTRUCTION, BUT BRINGS ABOUT A DECREASE IN LONG TERM PLASTICITY. IN THIS CONNECTION THERE ARE REASONS TO SUSPECT THAT THE USE OF HIGH TEMPERATURE HEAT TREATMENT AT 1190-1200DEGREESC AT PIPE PLANTS FOR BOILER PIPES MADE OF STEEL KH18N12T WILL PROMOTE EXCESSIVE BRITTLINESS IN STEAM SUPERHEATER PIPES. THE HIGH TEMPERATURE HEAT TREATMENT REGIMES OF COLD ROLLED PIPES OF STEEL KH18N12T THAT ARE PRESENTLY EMPLOYED ARE DETERMINED BY THE NECESSITY OF OBTAINING, IN THE PIPES, THE AUSTENITE GRAIN SIZE STIPULATED IN THE TECHNICAL SPECIFICATIONS AND BY THE STRIVING OF PIPE PLANTS TO REDUCE THE LENGTH OF THE HEAT TREATMENT CYCLE. THE HEAT RESISTANT PROPERTIES OF THE PIPE METAL ARE NOT TAKEN INTO ACCOUNT IN SELECTING THE HEAT TREATMENT REGIME. IN THIS CONNECTION, RESEARCH WAS UNDERTAKEN ON THE EFFECT OF THE HEAT TREATMENT REGIME ON THE HEAT RESISTANT PROPERTIES OF PIPE METAL FROM STEEL KH18N12T. SELECTED FOR INVESTIGATION WERE COLD ROLLED PIPES 32 TIMES 6 MM IN SIZE, FROM FOUR MELTS WHICH DIFFERED IN THE CONTENT OF CARBON AND TITANIUM. IT WAS FOUND THAT THE METAL OF COLD ROLLED PIPES FROM STEEL KH18N12T FROM DIFFERENT MELTS, AFTER HEAT TREATMENT UNDER IDENTICAL CONDITIONS, DIFFERED SUBSTANTIALLY WITH RESPECT TO HEAT RESISTANT PROPERTIES AT 650DEGREESC.

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3/3 027 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0140117
ABSTRACT/EXTRACT--IT IS HELD EXPEDIENT TO INTRODUCE GREATER UNIFORMITY IN
THE CARBON AND TITANIUM CONTENT OF STEEL KH18N12T MADE BY DIFFERENT
PLANTS. THE BEST COMBINATION OF STRENGTH AND PLASTIC PROPERTIES OF THE
METAL OF THE PIPES UNDER INVESTIGATION UNDER CONDITIONS OF LONG TERM
DESTRUCTION AT 650DEGREESC WAS OBTAINED AFTER HEAT TREATMENT AT
1175DEGREESC FOR 20 MINUTES. FACILITY: CENTRAL SCIENTIFIC
RESEARCH INSTITUTE OF MACHINE BUILDING TECHNOLOGY.

USSR

UDC 621.772.4.621.785

~~FANTAYEVA~~ M. I., Candidate of Technical Sciences, TYKUCHINSKAYA, T. V.,
Engineer, Central Scientific Research Institute of Machine Building Technology

"The Heat-Resistant Properties of the Metal of Steam Superheating Pipes of
Steel Kh18N12T After Various Kinds of Heat Treatment"

Teploenergetika, No 5, 1970, pp 13-16

Abstract: It is known that the heat-resistant properties of austenitic chrome-nickel steels of the type of 18Cr-12Ni, stabilized by titanium or niobium, are determined principally by the heat-treatment regime. A rise in the heat-treatment temperature is accompanied, as a rule, by an increase of the time prior to destruction, but brings about a decrease in long-term plasticity. In this connection there are reasons to suspect that the use of high-temperature heat treatment at 1190-1200°C at pipe plants for boiler pipes made of steel Kh18N12T will promote excessive brittleness in steam superheater pipes. The high-temperature heat-treatment regimes of cold-rolled pipes of steel Kh18N12T that are presently employed are determined by the necessity of obtaining, in the pipes, the austenite grain size stipulated in the technical specifications and by the striving of pipe plants to reduce the length of the heat-treatment

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FANTAYEVA, M. I., et al., Teploenergetika, No 5, 1970, pp 13-16

cycle. The heat-resistant properties of the pipe metal are not taken into account in selecting the heat-treatment regime. In this connection, research was undertaken on the effect of the heat-treatment regime on the heat-resistant properties of pipe metal from steel Kh18N12T. Selected for investigation were cold-rolled pipes 32 x 6 mm in size, from four melts which differed in the content of carbon and titanium. It was found that the metal of cold-rolled pipes from steel Kh18N12T from different melts, after heat treatment under identical conditions, differed substantially with respect to heat-resistant properties at 650° C. It is held expedient to introduce greater uniformity in the carbon and titanium content of steel Kh18N12T made by different plants. The best combination of strength and plastic properties of the metal of the pipes under investigation under conditions of long-term destruction at 650° C was obtained after heat treatment at 1175° C for 20 minutes.

2/2

- 44 -

Acc. Nr: **AP0044684**

F

Ref. Code: **UR 0531**

PRIMARY SOURCE: Khirurgiya, 1970, Nr 1, pp **46-51**

PHLEBOGRAPHY IN DISTURBANCES OF THE PATENCY
OF SUBCLAVICULAR AND AXILLARY VEINS

Portnoy, M. V.; Vedenskiy, A. N.; Fantzof, E. D.

The article discusses the diagnostic importance of contrast investigation of veins of the upper extremities and shoulder girdle in their acute obstruction. Phlebography was performed during the administration into the subcutaneous cubital vein of a 35 per cent solution of diodon, cardiotrast and other iodine agents in a quantity of 20-30 ml. In 32 patients 18 investigations were performed at different periods (from 1 day to 7 years) after the onset of the disease. Phlebographic changes are described in acute thrombosis, in sequelae of sustained thrombosis and compressed veins.

The authors arrive at the inference that phlebography in combination with other techniques in most cases enables to establish the nature of the process, its localization and extent, as well as the degree of development of collaterals. Phlebography is particularly important when deciding the problem of the operative treatment. In order to avoid incorrect interpretation of phlebographic data one should take into consideration all the changes on a series of roentgenograms and compare them with the clinical picture of the disease.

41

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UDC 591.1.15

FARADZHEV, A. N.

"Effect of Ionizing Irradiation on the Content of Total Protein and Protein Fractions"

Uch. zap. Azerb. un-t. Ser. biol. n. (Scientific Notes. Azerbaydzhani University. Biological Sciences Series), 1971, No 2, pp 81-86 (from RZh-Biologicheskaya Khimiya, No 2, 25 Jan 72, Abstract No 2F1266)

Translation: The content of total protein and protein fractions in the blood serum increases sharply in postnatal ontogeny (the amount of total protein in the blood serum is 3.6 g% in 5-10 day rabbits, and reaches 7.0% in the mature animals). In spite of the increase in total protein concentration in ontogenesis, the percent concentration of albumins in the blood serum does not change, or changes insignificantly. An increase in globulin fractions takes place due to β - and γ -globulins, but there are no appreciable changes in the α_1 - and α_2 -fractions with age. The relative concentration of γ -globulins in the blood serum of rabbit neonates differs from the value for mature rabbits. The amount of γ -globulins increases progressively with age. In the sexually mature period (180-240 days) the amount of γ -globulins drops repeatedly and becomes even lower than in the neonates. In adult animals

1/2

USSR

FARADZHEV, A. N., Uch. zap. Azerb. un-t. Ser. biol. n. (Scientific Notes. Azerbaydzhan University. Biological Sciences Series), 1971, No 2, pp 81-86 (from RZh-Biologicheskaya Khimiya, No 2, 25 Jan 72, Abstract No 2F1266)

(300 days) the γ -globulin content again increases. The age variations in the amount of β -globulins are partly analogous to the changes in γ -globulins. At the sexually mature age the concentration of β -globulins decreases sharply, whereas a repeated increase in β -globulins is observed in more mature animals. After irradiation, the test animals show two-phase changes in the content of protein fractions in the blood serum, and at the height of the radiation sickness (10-15th day) their relative concentration increases somewhat and then gradually levels off. The amount of β - and γ -globulins increases noticeably, whereas changes in the content of α_1 - and α_2 -globulins are insignificant. Less pronounced changes in the concentration of β - and γ -globulins are registered when neonate animals are irradiated. The amount of these components increases progressively in 180-240 day old, 300 day old and adult groups of animals. The most pronounced rise in their content is observed in sexually mature animals. *Résumé.*

2/2

- 95 -

USSR

UDC 621.382.2

GUTKIN, A. A., NASLEDOR, D. N., PARADZHEV, F. E.

"Polarization Effects in the Presence of Electroabsorption in GaAs p-si-n-Structures"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 393-396

Abstract: The polarization dependence of electroabsorption in gallium arsenide was investigated in the direction of propagation of light both perpendicular to an electric field and parallel to it. The polarization effects detected in the latter case (when the angle between the polarization vector and the electric field is constant) are wholly connected with the anisotropy of the energy bands. The measurements were taken near the edge of the primary absorption band ($E_g - 0.04 \leq \hbar\omega \leq E_g - 0.15$ electron volts) in fields of $\sim (1-3) \cdot 10^4$ volt.cm⁻¹ at temperatures of ~ 100 and 300° K. The variations of the absorption in a strong electric field were investigated using GaAs p-si-n-structures obtained by successive diffusion of chromium and zinc into unoriented gallium arsenide plates with an electron concentration of $\sim 10^{17}$ cm⁻³. Figures are presented showing the ratio of the transmission variations for the direction of the electric vector of the light wave parallel to the electric field in the sample and perpendicular to it, the dependence of $\Delta I/I_0$ on the angle between the plane of 1/2

USSR

GUTKIN, A. A., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 393-396

polarization of the light and an arbitrarily selected direction in the crystal on propagation of the light along the electric field into a high-resistance layer (that is, with mutual perpendicularity of the electric vector of the light wave and the field). In the latter case, there is a position of the polarization plane for which the electroabsorption is minimal. This effect was observed in all identically cut samples at temperatures of ~ 100 and 300° K, and its cause is interpreted as anisotropy of the band structure of the gallium arsenide.

The dependence of the degree of polarization of the electroabsorption on $h\nu$ is determined by the variation of the relative contribution to the electroabsorption of light and heavy holes giving a different degree of polarization [L. V. Keldysh, et al., FTP, No 3, 1042, 1969]. This dependence ceases to be observed if the variation of the absorption coefficients with the participation of light and heavy holes with photon energy varies in the same manner. It is shown in the investigated models that this takes place for $h\nu$ where the absorption edge in the field for light holes becomes similar to the edge in the absence of the field but shifted toward the lower photon energies.

2/2

1/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--RUPTURE RESISTANCE OF STEELS SUBJECTED TO LOADING AT TWO DIFFERENT
FREQUENCIES -U-
AUTHOR--(02)-ZAYTSEV, G.Z., FARADZHOV, R.M.
COUNTRY OF INFO--USSR
SOURCE--METALLOVEDENIE I TERM. OBRABOT. METALLOV, 1970, (2), 44-46
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--CYCLIC FATIGUE LIFE, CHROMIUM NICKEL STEEL, RUPTURE STRENGTH
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0137 STEP NO--UR/0129/70/000/002/0044/0046
CIRC ACCESSION NO--AP0123909
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123909

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FATIGUE CHARACTERISTICS OF C AND ALLOY (CR-NI) STEELS SUBJECTED TO TWO SIMULTANEOUS LOADS ACTING AT DIFFERENT FREQUENCIES WERE STUDIED. THE LOW CYCLE FATIGUE LIMIT FELL BY 85PERCENT IN THE PRESENCE OF AN H.F. LOAD OF SMALL AMPLITUDE (4 KG-MM PRIME²). THERE WAS A LINEAR RELATIONSHIP BETWEEN THE FATIGUE LIMITS DETERMINED FOR INDEPENDENT AND COMBINED L.F. AND H. F. LOADS. IF THE AVERAGE LOAD VARIED WITH TIME AT A L.F. (A FEW CYCLES-MIN) AND WITH A SMALL AMPLITUDE (5 KG-MM PRIME²) THE FATIGUE LIMIT FELL BY A FACTOR OF 2.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--EXPERIMENTAL REDESIGN OF APPARATUS FOR THE ATMOSPHERIC DISTILLATION
OF PETROLEUM -U-
AUTHOR--(05)-FAKHAZOV, S.A., ALIYEV, A.A., AKHMEDOV, N.I., KOSENKOV, V.G.,
DAVIDYAN, L.K.
COUNTRY OF INFO--USSR
SOURCE--NEFTEPEREKAB. NEFTEKHIM. (MOSCOW) 1970, (4), 10-12
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MILITARY SCIENCES
TOPIC TAGS--PETROLEUM DISTILLATION, PETROLEUM REFINING EQUIPMENT, HEAT
EXCHANGER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/1962 STEP NO--UR/0318/70/000/004/0010/0012
CIRC ACCESSION NO--AP0133806

UNCLASSIFIED

2/2 014
CIRC ACCESSION NO--AP0133806

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFICIENCY OF THE DISTN. COLUMNS WAS IMPROVED BY APPLYING INTERMEDIATE CIRCULATING REFLUX ON 2 CROSS SECTIONS. THE CAPACITY OF THE PLANT WAS INCREASED BY INCREASING THE TOTAL HEAT EXCHANGING SURFACE TO LARGER THAN OR EQUAL TO 18.6 M PRIME2-TON FEED. THE EFFICIENCY OF THE HEAT EXCHANGERS WAS INCREASED WHEN THE VELOCITY OF PETROLEUM FEED WAS INCREASED TO 1.59 M-SEC. FACILITY: BAKIN. NEFTEPERERAB. ZAVOD, BAKU, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--GEOCHEMISTRY OF PLATINUM GROUP ELEMENTS IN ORES OF COPPER
MOLYBDENUM DEPOSITS IN THE ARMENIAN SSR -U-
AUTHOR-(03)-FARAMAZYAN, A.S., KALININ, S.K., TEREKHOVICH, S.L.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(6), 1455-7
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--GEOCHEMISTRY, PLATINUM, COPPER, MOLYBDENUM, METAL ORE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1990/0278 STEP NO--UR/0020/70/190/005/1455/1457
CIRC ACCESSION NO--AT0108578
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AT0108578

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SAMPLES OF ORES AND CU AND MO CONCS. FROM THE KADZHARAN, AGARAK, DASTAKERT, AIGEDZOR, AND DZHINDARA DEPOSITS WERE ANALYZED FOR PT METALS, CU, MO, AU, AND AG. THE PT METAL CONTENTS IN ORES VARIED WITHIN WIDE RANGES AND WERE DISTRIBUTED VERY UNIFORMLY. ANAL. OF 6 SAMPLES OF MO CONC. SHOWED 0.026-1.1 PPM. PT. THERE WAS NO CORRELATION BETWEEN THE AU AND AG CONTENTS AND THOSE OF PT METALS AT A VERY WEAK CORRELATION BETWEEN CONTENTS OF PT METALS AND COM. COMPONENTS OF THE ORE (MO AND CU). THERE WERE DISTINCT DIFFERENCES BETWEEN DISTRIBUTION OF PT METALS IN CU AND MO CONCS. THE MO CONCS. HAD HIGHER CONTENTS OF PT AND PD THAN CU CONCS., I.E. MOLYBDENITE IS THE MAIN MINERAL CONCENTRATOR OF PT METALS WHEREAS CHALCOPYRITE IS THEIR MAIN MINERAL CONCENTRATOR OF PT METALS WHEREAS CHALCOPYRITE IS THEIR MAIN MINERAL BEARER. QUITE DISTINCT CORRELATION DEPENDENCE BETWEEN CONTENTS OF PD AND PT WAS OBSD. IN MO CONCS. WHERE PT PREDOMINATED OVER PD (PD-PT EQUALS 0.3-1 1-1). IN CU CONCS. AND ORES, THE PD CONTENT WAS USUALLY 5-6 TIMES HIGHER THAN THAT OF PT. NO INDEPENDENT PT MINERALS WERE DETECTED. HOWEVER, THE MINERAL FORM OF THEIR PRESENCE (SULFIDES OR OTHER COMPS.) IS SUSPECTED IN THE FORM OF SUBMICROSCOPIC INCLUSIONS. THE DISTRIBUTION OF PT AND PD IN CU AND MO CONCS. EVIDENTLY WAS CONTROLLED BY THE TEMP. OF MINERALIZATION. THE PT MINERALS WITH ADMIXT. OF PD ASSOCD. WITH THE EARLIEST AND HIGH TEMP. MO MINERALIZATION WHEREAS MINERALS OF PD WITH ADMIXT. OF PT WERE RELATED TO THE LATER RELATIVE LOW TEMP. (CHALCOPYRITE) STAGE OF MINERALIZATION.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--SOME CLINICO PATHOGENETIC CORRELATIONS IN VIRAL HEPATITIS AND OTHER
DISEASE OF THE LIVER -U-
AUTHOR-(03)-FARBER, N.A., KIRZHNER, L.S., MORGUNOV, V.A.
COUNTRY OF INFO--USSR F
SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 4, PP 50-54
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--HEPATITIS, BLOOD CIRCULATION, BIOPSY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/1431

STEP NO--UR/0504/70/042/004/0050/0054

CIRC ACCESSION NO--AP0109491

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109491

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A TOTAL OF 35 PATIENTS WITH DISEASES OF THE LIVER (VIRAL HEPATITIS 10, CHRONIC HEPATITIS 11, LIVER CIRRHOSIS 8 AND OBSTRUCTION PANCREAS DUE TO MALIGNANT NEWGROWTHS 6) WERE SUBJECTED TO COMPLEX EXAMINATION WITH THE EMPLOYMENT OF CLINICO BIOCHEMICAL, HEPATORHEOGRAPHIC AND HISTO MORPHOLOGICAL (INTRAVITAL PUNCTURE BIOPSY OF THE LIVER) METHODS. THE TECHNIQUES OF THE VARIATIONAL STATISTICS WERE USED TO REVEAL THE DEGREE OF CORRELATION BETWEEN THE INDICES OF DISTURBED INTRAHEPATIC BLOOD CIRCULATION, BIOCHEMICAL AND STRUCTURAL CHANGES IN THE LIVER. IT WAS ESTABLISHED THAT THE INDICES OF HEPATOGRAPHY SERVE AS THE MOST ACCURATE INDICATORS OF FIBROSIS IN THE LIVER. FACILITY: KLINICHESKIY OTDEL INSTITUTA VIRUSOLOGII IM. D. I. IVANOVSKOGO AMN SSR AND GORODSKAYA KLINICHESKAYA INFEDTSIONNAYA BOL'NITSA NO 82, MOSCOW.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--THE CLASSIFICATION OF REMOTE SEQUELAE OF INFECTIOUS HEPATITIS -U-
AUTHOR-(03)-FARBER, N.A., ALFINYAN, V.M., KUTCHAK, S.N.
COUNTRY OF INFO--USSR F
SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 6, PP 63-70
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEPATITIS, VIRUS DISEASE, BIOPSY, LIVER, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/1473

STEP NO--UR/0497/70/048/006/0063/0070

CIRC ACCESSION NO--AP0133409

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0133409

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER IS CONCERNED WITH THE RESULTS OF A DETAILED CLINICO BIOCHEMICAL EXAMINATION OF 650 PATIENTS WITH ACUTE VIRAL HEPATITIS AND IN THE RESTORATIVE PERIOD; 64 CONVALESCENTS UNDERWENT ASPIRATION BIOPSY OF THE LIVER. AN ANALYSIS OF CLINICO MORPHOLOGICAL CORRELATIONS MAKES IT POSSIBLE TO DEFINE THE CLASSIFICATION AND DIFFERENTIAL DIAGNOSIS OF THE REMOTE SEQUELAE. IN ADULTS VIRAL HEPATITIS TERMINATES BY COMPLETE RECOVERY IN 69.1 PERCENT OF CASES, DIFFERENT RESIDUAL MANIFESTATIONS ARE RECORDED IN 15.7PERCENT, INFLAMMATORY LESIONS OF THE BILIARY TRACT, IN 11.5PERCENT OF CONVALESCENTS; CHRONIC HEPATITIS DEVELOPS IN 3.2PERCENT AND CIRRHOSIS OF THE LIVER, IN 0.5PERCENT OF PATIENTS. FACILITY: KLINICHESKY OTDEL INSTITUTA VIRUSOLOGII IM IVANOVSKOGO AMN SSSR I MGSKOVSKAYA GORODSKAYA KLINICHESKOGO INFEKTSIONNAYA BOL'NITSA NO 82.

UNCLASSIFIED

FARBER, N. L.

SOME PROBLEMS OF THE ELECTROHYDRODYNAMICS OF MULTIPHASE MEDIA

(Abstract of a Paper by N. V. Gerasimov, N. L. Farber Given at the Magnetohydrodynamic Conference, pp 237-239)

The equations of motion of the multiphase medium [a gas (or liquid), charged drops (or solid particles) and free ions] are written in the electrohydrodynamic approximation. Using the principles of thermodynamics of nonequilibrium processes in the case of weak deviation from equilibrium, formulas are derived for the frictional force, the heat flux in the gas phase, the exchange of energy between the components and the evaporation and condensation rates of the drops.

Procedures are proposed for simplifying the system of equations obtained. Various forms of Ohm's law were obtained for drops in a multiphase medium. A simple formula was derived for calculating the phase temperature difference. It is demonstrated that Ohm's law for drops differs from the corresponding expression in ordinary electrodynamics: the relation of the current density to the velocity of the medium and the electric field is nonlinear.

The "freezing" integral for the liquid phase which is valid for the case where the gas and liquid phase rates coincide was obtained. A study was made of the problem of uniform, stationary flow with a complex Ohm's law for the liquid phase. It is demonstrated that when the electric field can be considered constant, the solution of the problem reduces to solving the corresponding problem in ordinary electrodynamics by the introduction of new notation.

The system of relations is written out for the discontinuity in the two-phase medium made up of gas and charged drops using the complex Ohm's law. The discontinuity classification is proposed. It is demonstrated that in order to determine the parameters behind the shock wave front it is insufficient to give the values of these parameters in front of the discontinuity and the propagation rate of the discontinuity. The intensity of the surface charge at the discontinuity and the magnitude of the normal component of the electric field behind the discontinuity front connected with it remain undefined in this case. The required equations are written out which close the system of relations for the shock wave front. Just as in ordinary electrodynamics, the form of these formulas depends on the magnitude of the velocity normal to the discontinuity.

SPRS 66034
97 November 1975

1/2 005 UNCLASSIFIED
TITLE--THE TESTS WERE SUCCESSFUL -U-

PROCESSING DATE--16OCT70

AUTHOR--FARBER, V.

COUNTRY OF INFO--USSR *F*

SOURCE--SOVETSKAYA LATVIYA, JULY 31, 1970, P 4, COL 1

DATE PUBLISHED--31JUL70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--EARTH HANDLING EQUIPMENT, EARTH REMOVAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0895

STEP NO--UR/9019/70/000/000/0004/0004

CIRC ACCESSION NO--AN0122939

UNCLASSIFIED

2/2 005

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AN0122939

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE 5,000,000 CUBIC METER PROGRAM OF EARTH MOVING OF THE BALTIC ADMINISTRATION OF SEAWAYS, BALTIYSKOYE UPRAVLENIYE MORSKIKH PUTY, WILL BE GREATLY HELPED BY THE EARTH LOOSENING INSTALLATION DESIGNED BY ENGINEER K. PYATNITSKIY. IT HAS BEEN APPROVED BY A COMMISSION CONSISTING OF REPRESENTATIVES OF THE LENMORNIIPROYEKT AND THE CENTRAL DESIGN BUREAU OF THE MINISTRY OF MERCHANT MARINE, U. S. S. R.

UNCLASSIFIED

Steels

USSR

UDC 669-15:621.789

BELEN'KIY, B. Z., FARBER, V. M., and GOL'DSHTEYN, M. I., Ural Polytechnic Institute

"Investigation of the Fine Structure of Steel After Deformation in the Course of Perlite Transformation"

Moscow, Izvestiya VUZ, Chernaya Metallurgiya, No 10, 1973, pp 109-113

Abstract: In this article the authors have investigated the structure and properties of 10GN steel after thermomechanical treatment in the course of diffusion decay at the perlite stage. Electron microscropic investigation showed that the microstructure of steel to a significant degree is established by the temperature of plastic deformation. The level of the mechanical properties after various treatments is associated with the formation of a substructure in the ferrite and a modification in the morphology of the perlite.

1/2

USSR

BELEN'KIY, B. Z., et al., Izvestiya VUZ, Chernaya Metallurgiya, No 10, 1973,
pp 109-113

Figure 1 is a photograph of the structure of the 10GN steel and Figure 2 is a photograph of the structure of the steel at various temperatures for the substructure and the perlite.

The article contains 2 figures and 11 bibliographic references.

2/2

- 38 -

USSR

GRIGOR'YEV, Yu. G., FARBER, Yu. V., and VOLOKHOVA, N. A.

Vestibulyarnyye reaktsii (Metody issledovaniya i vliyaniya razlichnykh faktorov vneshney sredy) (Vestibular Reactions [Methods of Investigation and the Effect of Various Factors in the External Environment])

Moscow, "Meditsina", 1970, 196 pp

Translation: Annotation: This monograph reports data on the quantitative characteristics of the sensitivity and reactivity of the vestibular analyzer. It describes the nature of the functional connection between the intensity of vestibular reactions and the magnitudes of various parameters of adequate stimuli (strength, duration) of the nonaural part of the labyrinth. A special section contains data on the nature of the organism's reactions, on the characteristics of adaptation, of shifts in the sensitivity and reactivity of the vestibular analyzer during the prolonged (up to 15 days) periodic effect of Coriolis accelerations. An analysis is made of the motion-sickness syndrome which occurs when a person remains in a rotation chamber. The urgency of the present investigation is conditioned, apart from its general physiological significance, by the prospects of creating artificial gravity on space vehicles.

1/9

- 87 -

USSR

GRIGOR'YEV, Yu. G., et al, "Meditsina", 1970, 196 pp

Material is examined regarding the effect on the vestibular analysor of a number of other environmental factors, principally the effect of ionizing radiation. The dynamics of the development of radiation injury of the vestibular analysor has been traced and the degree of resistance of the compensatory processes has been evaluated. Experiments set up during acute and chronic irradiation in small and large doses make it possible to draw conclusions about the sensitivity of the vestibular analysor to ionizing radiation and also about the possible reactions of the organism in the event of their occurrence. Observations were made using modern methods of investigating vestibular function (cupulometry and electrographic recording of reactions). From the Authors. Questions relating to the study of vestibular analysor function have been worked out for many decades. A great quantity of published works has recently appeared in the Soviet Union and abroad regarding one or another aspect of vestibular analysor function. The perfection of vestibular measuring methods, based on the application of an adequate stimulation of the sense organs of the vestibular analysor, has helped make possible the considerable success attained in that area of physiology. It must be emphasized once again that the successes now being achieved by Soviet labyrinthologists in the study of vestibular analysor function represent the harmonious continuation of the

2/9

USSR

GRIGOR'YEV, Yu. G., et al, "Meditsina", 1970, 196 pp

work of such researchers as S. F. Shteyn, V. I. Voyachek, K. L. Khilov, V. F. Undrits, and A. Kh. Min'kovskiy. The study of the function of the nonaural part of the labyrinth, especially the cupular apparatus, has great scientific and practical significance. Data on the nature of vestibular reactions of the organism in response to the effect of angular accelerations are equally of interest to space medicine specialists and otologists and neuropathologists. The authors of the present monograph, which is being brought to the attention of readers, have for a number of years made a study of vestibular reactions in clinical and experimental studies of the effect on the organism of various environmental factors. As a result a great deal of factual material has been accumulated which may be useful to a great many specialists. We consider it our pleasant duty to express sincere thanks to N. I. Arlashchenko, B. B. Bokhov, V. A. Galichego and V. S. Sveshinkov, who participated in individual phases of the work.

3/9

- 88 -

USSR

GRIGOR'YEV, Yu. G., et al. "Meditsina", 1970, 196 pp

PREFACE. As so often happens, heightened interest in understanding some phenomenon or other is inevitably accompanied by the growth of technical capabilities making experimentation possible. Suitable examples have been cited in abundance, but it is enough to recall the evolution of the working concepts of visual and auditory analysors. As a result, researchers have long been equipped with reliable quantitative criteria for evaluating the functional state of those systems. At the present time, an analagous process is also underway in the study of vestibular analyzor function. It can be said with complete conviction that this field of analyzor physiology is now studied least of all. One of the reasons for such a situation is the specific lag, until recently, in the development of vestibulometry. Due to the efforts of Soviet and foreign investigators, labyrinthologists are today equipped with methods of procedure which permit the objective study of the vestibular analyzor on a rigidly quantitative basis. As a result, researchers in the physiology of this analyzor system are now rapidly accumulating facts characterizing its basic activity. It is obvious that, lacking the concepts of the basic functional characteristics of the vestibular analyzor, it is difficult to study its function under the influence of various environmental factors. Notwithstanding the great amount of work expended on this question, many of

4/9

USSR

GRIGOR'YEV, Yu. G., et al, "Meditsina", 1970, 196 pp

its aspects require more exact definition and further investigation. In physiology textbooks and manuals, the sections dealing with vestibular analyzor function are treated very inadequately. It is therefore fitting to welcome the appearance of works which summarize the experimental data on the physiology of analyzor systems. As a result of the experiments conducted by the authors, additional facts were obtained which described the sensitivity and reactivity of the vestibular analyzor of experimental animals and of man. Special sections deal with the significance of the time factor in the action of adequate stimuli in arousing vestibular reactions, and also deal with questions of interrelationships between various components. (see chapters I-III). The rapid development of space medicine and biology made necessary a detailed and still wider study of some areas of physiology. Among the various questions in modern space physiology, the study of vestibular analyzor function occupies a central place. Available information permits the assumption that a prolonged state of weightlessness can exert a definite influence on the vital activity and behavior of cosmonauts. In this connection it is practicable to create a spaceship with artificial gravity by rotating it around its own axis. In this case, man is confronted with Coriolis accelerations, an adequate stimulus

5/9

- 89 -

USSR

GRIGOR'YEV, Yu. G., et al, "Meditsina", 1970, 196 pp

of the vestibular analyzor. Research in this direction is fairly recent and the information available on this question is still insufficient. A special section of the monograph contains data about the organism's reactions, adaptation characteristics, and shifts in the sensitivity and reactivity of the vestibular analyzor during the prolonged effect (up to 15 days) of periodic Coriolis accelerations. An analysis is made of the motion-sickness syndrome, which occurs when a person stays in a slowly rotating chamber. The urgency of the present investigation is determined, apart from its general physiological significance, by the prospects of creating artificial gravity in space vehicles. Numerous observations indicate that the effect on an organism of stimuli which are not adequate for the vestibular analyzor can substantially alter the functional state of the vestibular analyzor. Data on the effect of ionizing radiation on the vestibular analyzor are also presented (see Chapter V). Data is analyzed regarding the effect on the vestibular analyzor of a number of other environmental factors and above all of ionizing radiation. The dynamics of radiation injury of the vestibular analyzor is traced and the degree of resistance of the compensatory processes is evaluated. Experiments conducted with acute or chronic irradiation in small and large doses make it possible to draw conclusions about the sensitivity of the vestibular analyzor

6/9

USSR

GRIGOR'YEV, Yu. G., et al, "Meditsina", 1970, 196 pp

to ionizing radiation, and also about the possible reactions of the organism. Some of the data deals with the reaction of a person to small doses of radiation when a number of physical environmental factors are acting simultaneously. Particular attention should be paid to the authors' suggestion that the vestibular analyzer is a critical organ, on the basis of permissible levels of radiation during spaceflight. All of the observations were made on people and experimental animals using modern methods of investigating vestibular function (cupulometry and electrographic recording of reactions).

Academician V. V. Parin

Table of Contents	Page
From the authors	3
Preface	5
Quantitative evaluation of vestibular reactions upon adequate stimulation of the semicircular canals of the labyrinth	9
Conditions and methods of vestibular research	37
Vestibular reactions as influenced by angular accelerations	52
1. Sensory and somatic reactions at threshold stimuli	52

7/9

- 90 -

USSR

GRIGOR'YEV, Yu. G., et al, "Meditsina", 1970, 196 pp

2. Vestibular reactions at threshold stimuli	58
3. Vestibular-sensory and somatic reactions under the influence of increasingly greater above-threshold stimuli	63
4. Vestibular-antonomic reactions under the influence of increasingly greater above-threshold stimuli	81
5. The relation between the intensity of response of vestibular reactions and the duration of the stimuli	87
6. Investigation of the correlation among indexes characterizing the intensity of the vestibular reaction during adequate stimulation of the cupular apparatus	93
The effect of Coriolis accelerations on human and animal organisms	101
1. Coriolis accelerations and the origin of the motion-sickness syndrome	101
2. Physiological reactions of the organism during the prolonged effect of periodic Coriolis accelerations	111
3. Some aspects of adaptation to the prolonged effect of periodic Coriolis accelerations	143

8/9

USSR

GRIGOR'YEV, Yu. G., et al, "Meditsina", 1970, 196 pp

Vestibular reactions during the effect of ionizing radiation in a broad range of doses	153
1. Quantitative relationships between doses of ionizing radiation and the functional state of the semicircular canals	160
2. Sensitivity and reactivity of the vestibular analysor to Coriolis accelerations during whole-body and local effect of ionizing radiation	170
3. The functional state of the vestibular analysor during the combined influence of ionizing radiation and other physical factors	176
4. The vestibular analysor as an experimental model for evaluating compensatory processes during radiation injury	181
Bibliography	188

9/9

- 91 -

USSR

UDC 615.477.616-089.29

ADRIANOV, YU. M., ZEL'TSER, A. YA., MATVEYEV, A. P., and FAREEROV, A. L.,

"Prosthetic Arm With Electrohydraulic Drive Mechanism"

USSR Author's Certificate No 320281, filed 17 Dec 69, Published Dec 71 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 34, Dec 71, Abstract No 61f 1/06)

Translation of Russian Abstract: A prosthetic arm with electrohydraulic drive mechanism is described. It includes an artificial wrist, forearm and shoulder sockets, a nonreversible pump, hydrocylinders, an electric motor and battery, overflow valve, compensation reservoir, valve distributors, and electronic control units. It is distinguished by the fact that, in order to regulate grasping force and ensure parallel operation of the working parts, hydraulic resistance is established in it parallel to the hydraulic relay element, for example in the form of a constant choke with advance regulation. This interacts with the elastic wrist element which is made in the shape of a spring and connected by a coupling rod to the hydrocylinder ram and the lever elements of the wrist mechanism. For each pair of movements, two valve distributors are installed with control coils containing two support elements.

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- 40 -

1/2 013 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--GROUP THEORETICAL METHOD FOR DETERMINING PERMITTED TERMS OF THE
ELECTRONIC STATES OF POLYATOMIC MOLECULES TAKING ACCOUNT OF SPIN ORBIT
AUTHOR--(C5)--MEN, A.N., CHEREPANOV, V.I., FARBEROV, D.S., MITROFANOV,
V.YA., CHUFAROV, G.I.
COUNTRY OF INFO--USSR

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TOPIC TAGS--MOLECULAR STRUCTURE, SPIN ORBIT COUPLING, EXCITED ELECTRON
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2/2 013

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PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0055352

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A GROUP THEORETICAL METHOD FOR
DETG. THE PERMITTED STATES OF POLYAT. MOLES., PROCEEDING FROM GIVEN AT.
STATES IN WHICH THE SPIN ORBIT INTERACTION HAS BEEN TAKEN INTO ACCOUNT,
IS PROPOSED.

UNCLASSIFIED

Acc. Nr:

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CHEMICAL ABST. 5-70

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21 R 0467

102239p Physicochemical characteristics of thermal carbon black from anthracene. Lisyutkina, L. N.; Rogailin, M. I.; ~~Barberov, I. I.~~ (Inst. Goryuch. Iskop., Moscow, USSR). *Khim. Tverd. Topl.* 1970, (1), 131-4 (Russ). The sp. surface area, the structure, the elemental and tech. compns., and the pycnometric d. of carbon black from anthracene were detd. Anthracene was pyrolyzed rapidly at 1500 and 2000°K in a specially designed lab. app. The time of pyrolysis was 1, 5, and 120 sec., resp. The obtained carbon blacks were thermally treated at 1470°K in the stream of Ar for 60 min. The compns. of the initial and thermal treated samples are tabulated, the C content being 95-97 wt.%. The H content and the yield of gas decreased with an increase of the pyrolysis temp. and the residence time of particles in reaction zone. Electron micrographs showed typical globular particles of the same diam. joined into chains. In order to evaluate the degree of polydispersion the curves of the size distribution of carbon black particles were constructed. For all samples the sp. surface area and dispersity decreased with increasing residence time of particles in reaction zone and with decreasing temp. of pyrolysis. For a comparison the phys.-chem. characteristics of carbon black obtained from epoxy-pitch are given. A. Simecek

REEL/FRAME

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UDC: 549.212

KOVALEVSKIY, N.N., ROGATYLIN, M.I., and FARBEROV, I.L., Institute of Mineral Fuels

"On the Theory of the Volumetric Compaction of Graphite With Pyrolytic Carbon"

Moscow, Khimiya Tverdogo Topliva, No 2, 1970, pp 141-148

Abstract: The "volumetric" method of compacting artificial graphite with pyrolytic carbon offers significant advantages as regards the physical, thermal, and electrical properties of the product, but it has not been generally adopted owing to the lack of information on the immediate physical processes involved and on the properties of the resultant graphite. The authors summarize recent theoretical and experimental studies relating to the method.

2/2

1/2 008 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SYNTHESIS OF SOME DIARYL KETONES -U-
AUTHOR--(05)-MIRONOV, G.S., CHERNYAKOVSKAYA, K.A., FARBEROV, M.I.,
TYULENEVA, I.M., ROSAKOVA, M.S.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 620-7
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TOPIC TAGS--ORGANIC SYNTHESIS, AROMATIC KETONE, AROMATIC HYDROCARBON,
PHOSGENE, ALUMINUM CHLORIDE, CHLOROMETHANE
CENTREL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/1944 STEP NO--UR/0080/70/043/003/0620/0627
CIRC ACCESSION NO--AP0132205
UNCLASSIFIED

2/2 OCB UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0132205
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. DIARYL KETONES WERE PREPD. EITHER
BY THE DIRECT REACTION OF AROMATIC HYDROCARBONS WITH PHOSGENE AND ALCL
SUB3, OR BY THE REACTION OF AROMATIC HYDROCARBONS WITH CCL SUB4 FOLLOWED
BY HYDROLYSIS OF THE INTERMEDIATE DIARYLDICHLOROMETHANE.
FACILITY: VAROSLAV. TEKHNOL. INST., YAROSLAVL, USSR.

UNCLASSIFIED

USSR

UDC: 629.12:532

KULAYEV, M. G., FARBEROV, Ya. F.

"Experimental Study and Approximate Method of Calculating the Lateral Force Acting on a V-Shaped Hydrofoil During Motion With Drift"

V sb. Vopr. resh. sudostr. (Problems of Riverboat Construction--collection of works), Gor'kiy, 1971, pp 187-214 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7B495)

Translation: The paper gives a brief description of an experimental installation for testing a V-shaped hydrofoil of planosegmental profile in an experimental tank; experimental data are given on pulling the foil through the tank at a Froude number of 9 along the chord. These data are given in the form of graphs showing the drag, lift, and coefficient of lateral force as functions of the angle of attack, drift, and relative submersion of the foil. On the basis of an analysis of the resultant data and some considerations typical of the theory of a wing of finite span, an approximate method is worked out for calculating the coefficient of lateral force acting on the foil at low angles of drift from the known relation for lift as a function of angle of attack and relative submersion of the foil at zero drift angle. L. M. Dykhata.

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USSR

UDC 612.821.6

FARBEROVA, YE. M., Chair of the Physiology of Higher Nervous Activity, Moscow State University imeni M. V. Lomonosov

"The Role of Different Parts of the Hippocampus in the Process of Learning"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23, No 1, Jan/Feb 1973, pp 195-197

Abstract: After complex conditioned reflexes -- involving three conditional stimuli (light, sound, and setup of the chamber) and three reactions in succession before food was obtained -- were developed in rats, the dorsal or ventral hippocampus was destroyed through electrocoagulation in the stage of non-consolidated reaction (150-200 drills) and automation (450-500 drills) and, after a 10-day recovery period, the ability of the animals to reproduce the whole chain reaction was tested. Animals with the dorsal hippocampus destroyed in the unconsolidated stage were confused, their differentiation of the individual signals was poor, they made three times as many mistakes as the controls, it was especially difficult for them to reproduce the first link of the chain, and they displayed an increased motor activity in general. On the other hand, destruction of the dorsal hippocampus in the automation stage and of the ventral hippocampus in both stages produced no visible disturbances.

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USSR

FARBEROVA, YE. M., Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov,
Vol 23, No 1, Jan/Feb 1973, pp 195-197

Thus it appears that the dorsal hippocampus plays an important role in the process of forming reflex systems, where it is concerned with coding and processing new information. After the conditioned reaction is automated, it is freed to accept and process new information again. The ventral hippocampus may participate in secondary processing of information.

2/2

- 33 -

USSR

ALAD'YEV, I. T., VOSKRESENSKIY, K. D., GUKOV, G. P., SAPEROV, YE. V.,
FARDZINOV, V. K.

"Device for Extracting Geothermal Energy"

USSR Author's Certificate No 322084 (from Otkrytiya, Izobreteniya, Promyshlennyye obravtsy, Tovarnyye znaki (Discoveries, Inventions, Industrial Models, Trademarks), No 43, 1973, page 213)

Translation: (1) This device for extracting geothermal energy from hot rock crushed, for example, by an underground nuclear explosion and containing the basic drill stem and open-bottom working casing set to a flooded horizon is distinguished by the fact that in order to increase the reliability it reduced the time for putting the unit into operation, the operating column is made perforated above the lower mark of the stem and it is equipped in the perforated section with discharge channels, but inside the operating column below the perforated section a heat exchanger has been installed for tapping the geothermal heat.

(2) This is a device according to item 1 distinguished by the fact that the operating stem is executed with perforations in the lower section.

1/1

USSR

UDC 621.791.011:620.192.4

MATKHANOV, V. N., Candidate of Technical Sciences, KHRUYKIN, YU. A., Engineer,
FARENBRUKH, V. E., Engineer, Irkutsk Polytechnic Institute, SHERSTNEV, V. V.,
Engineer, Korshunov Beneficiation Combine

"Cold Resistance of Joints Welded at Negative Temperatures"

Moscow, Svarochnoye proizvodstvo, No 9, 1972, pp 26-28

Abstract: A study was made of the effect of negative temperatures during welding on the cold resistance of welded joints of St.3sp and 10G2S1 steel. The results of a chemical analysis and mechanical testing of the steel are tabulated. The threshold of cold brittleness defined by the minimum impact toughness is somewhat lower than that defined by the presence of a 20% viscous component in the fracture. When welding the investigated steel, the maximum reduction in impact toughness takes place in the zone heated to 200-300° C. With a decrease in the initial welding temperature to -30° C, an increase in the threshold of cold brittleness of the metal in the weld-affected zone by 25-35° C takes place by comparison with the cold brittleness threshold of the base metal. Negative temperatures during welding especially affect the cold brittleness of the weld-affected zone of low-carbon St.3sp steel.

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USSR

UDC 533.916

ROZHKOV, A. M., STEPANOV, K. N., SUPRUNENKO, V. A., FARENIK, V. I.,
VLASOV, V. V.

"Resonance Cyclotron Instability in a Rotating Plasma"

Fiz. plazmy i probl. upravl. termovader. sinteza. Resp. mezhved. sb.
(Plasma Physics and Problems of the Controlled Thermonuclear Fusion.
Republic Interdepartmental Collection), 1972, No. 3, pp 193-202 (from
RZh-Fizika, No 11, Nov 72, Abstract No 11G178)

Translation: Resonance excitation of ion-cyclotron oscillations in a plasma in crossed electric and magnetic fields was investigated experimentally. It was shown that if the frequency of the drift rotation of a plasma cloud in crossed fields is a multiple of the gyrofrequency of the ions, a resonance cyclotron instability develops in the discharge which is accompanied by continuous generation of ion-cyclotron oscillations of high amplitude, due to the energy of the external source of direct current. The increment of this instability is on the order of the gyrofrequency of the ions.

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